

AD-A115 016

ARMY ELECTRONICS COMMAND WHITE SANDS MISSILE RANGE N--ETC F/0 4/2
193156 MLRS MISSILE NUMBERS V15-006, V28-009 ROUND NUMBERS V248--ETC(U)
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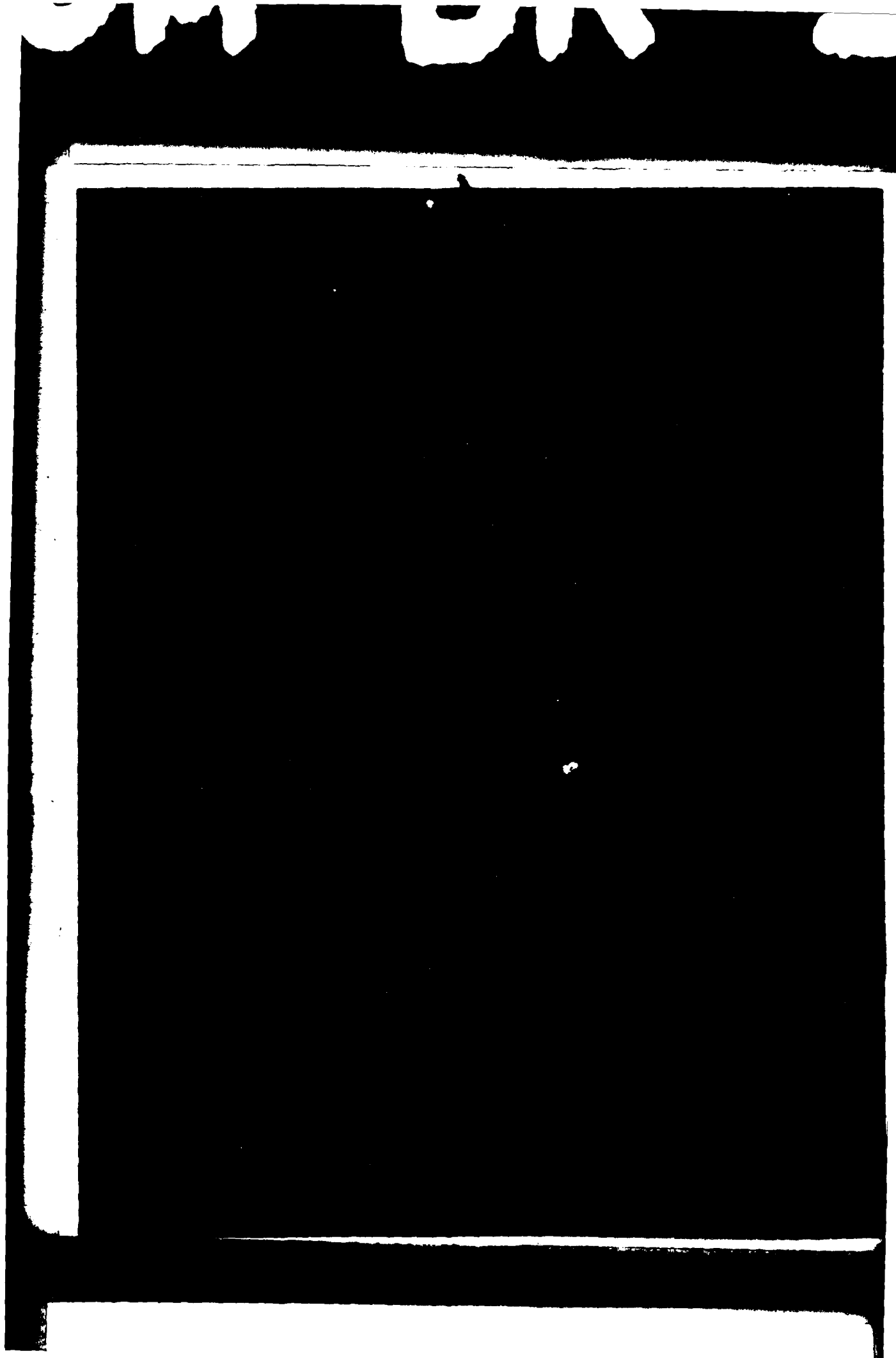
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Meteorological data gathered for the launching of the 19315B MLRS, Missile No. V15-006, V28-009, Round No. V248/AT2-17, V249/AT2-18, presented in tabular form. <i>me</i>		

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INTRODUCTION

19315B MLRS, Missile Numbers V15-006 and V28-009, Round Numbers V248/AT2-17 and V249/AT2-18, were launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1001:38 and 1010:18 MST, 24 April 1982. The scheduled launch times were 1000 and 1005 MST.

DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

1. Observations

a. Surface

(1) Standard surface observations to include pressure, temperature ($^{\circ}\text{C}$), relative humidity, dew point ($^{\circ}\text{C}$), density (gm/m^3), wind direction and speed, and cloud cover were made at the LC-33 Met Site at T-0 minutes.

(2) Anemometer data were provided from existing pole-mounted and tower-mounted anemometers at LC-33. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

b. Upper Air

(1) Low level wind data were obtained from pilot-balloon observations at:

SITE AND ALTITUDE

LC-33	2 Km
Don	2 Km

(2) Air structure data (rawinsonde) were collected at the following Met Sites:

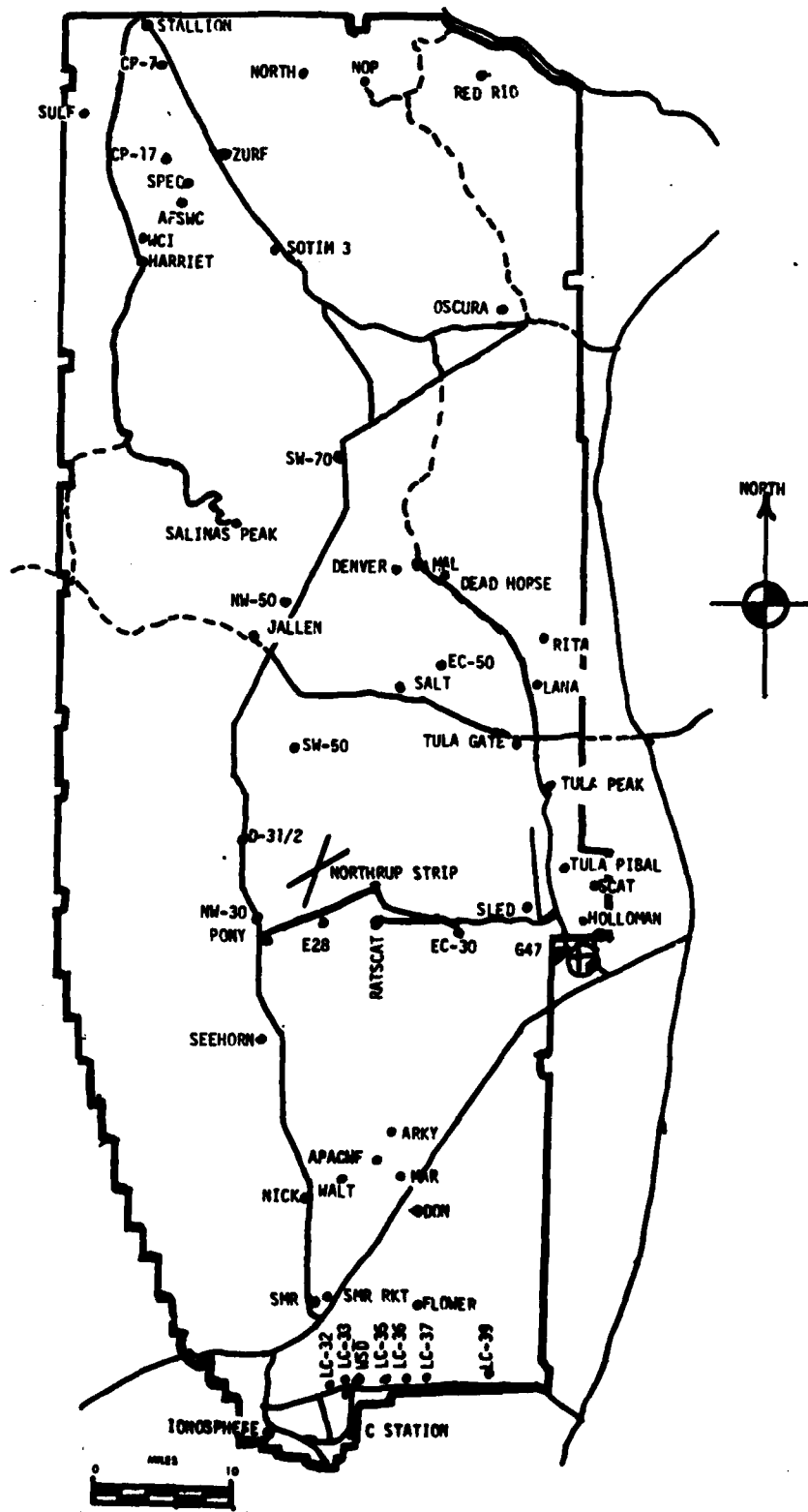
SITE AND TIME

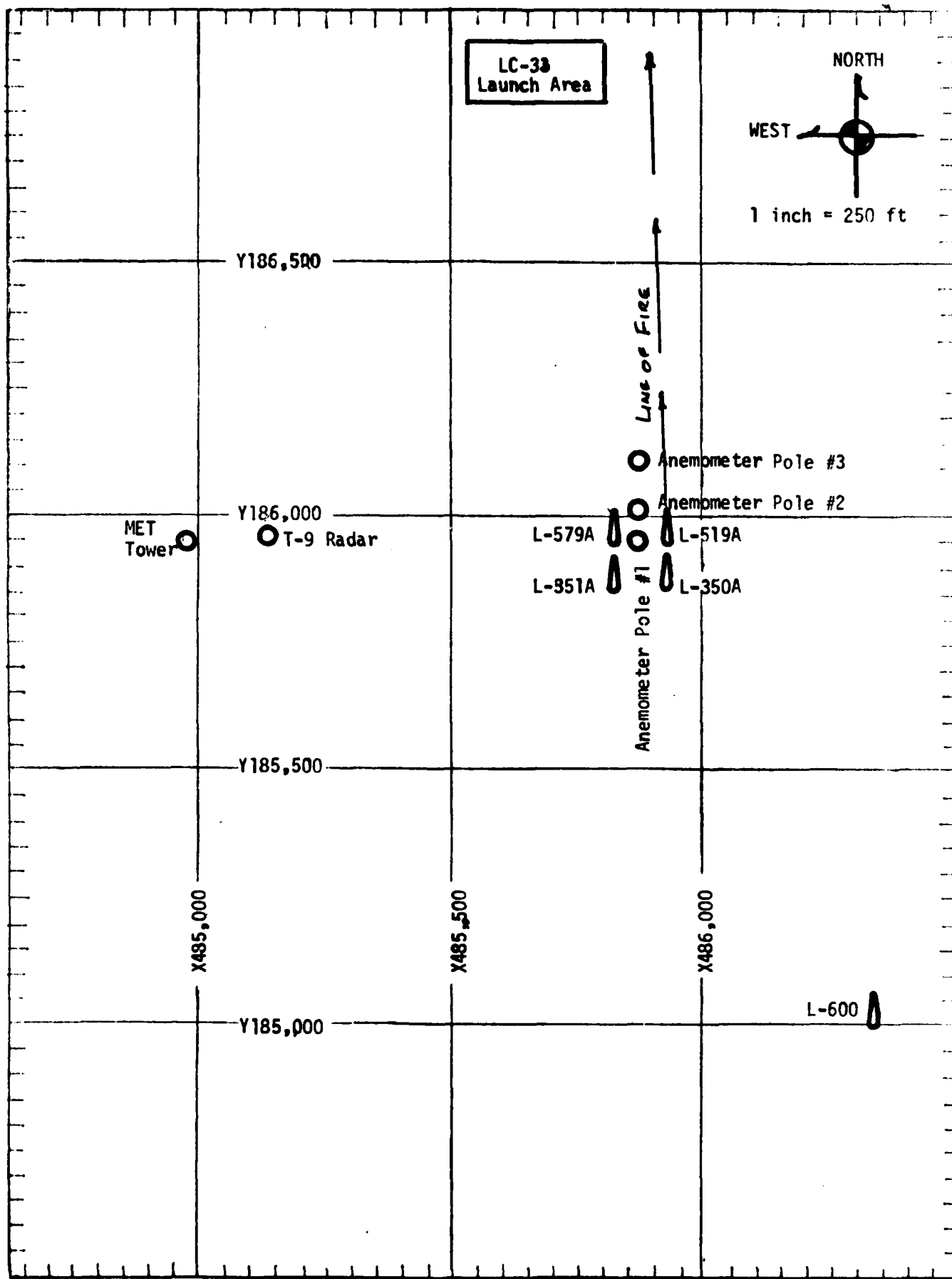
WSD	0700 MST
LC-37	0800 MST
WSD	0900 MST
LC-37	1045 MST

Accession For	
NTIS GRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By _____	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A	



WSMR METEOROLOGICAL SITES





PROJECT SURFACE OBSERVATION

TABLE <u>1</u>									
STATION <u>LC 33 E&A</u>									
DATE <u>24</u> <u>APR</u> <u>82</u> <u>YEAR</u>									
X = <u>484,982.65</u> Y = <u>185,957.73</u> H = <u>3995.00</u>									
TIME M S T	PRESSURE mbs	TEMPERATURE OF OC	DEW POINT OF OC	RELATIVE HUMIDITY %	DENSITY g/m ³	DIRECTION degs Tn	WIND SPEED kts	CHARACTER kts	VISIBIL- ITY
1003	879.3	17.0	0.4	33	1051	222	02		40
1010	879.3	17.1	0.5	33	1050	285	08		40

OBSTRUCTIONS TO VISIBILITY	CLOUDS						REMARKS
	1st LAYER		2nd LAYER		3rd LAYER		
	AMT	TYPE	AMT	TYPE	AMT	TYPE	
	1	CU					H ALQDS
	1	CU					H ALQDS

PSYCHROMETRIC COMPUTATION

TIME:	1003	1010
DRY BULB TEMP.	17.0	17.1
WET BULB TEMP.	8.5	8.6
WET BULB DEPR.	8.5	8.5
DEW POINT	0.4	0.5
RELATIVE HUMID.	33	33

TABLE 2 LC-33 FIXED POLE ANEMOMETER MEASURED WINDS

POLE #1 X485,874.29 Y185,958.90 H4018.74 38.7 ft. AGL			POLE #2 X485,874.93 Y186,012.00 H4033.57 53.0 ft. AGL			POLE #3 X485,877.29 Y186,116.06 H4063.92 83.6 ft. AGL		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	CALM	CALM	T-30	172	02	T-30	163	03
T-20	CALM	CALM	T-20	172	01	T-20	171	03
T-10	CALM	CALM	T-10	172	01	T-10	172	03
T0.0	CALM	CALM	T0.0	172	02	T0.0	172	03
T+10	CALM	CALM	T+10	178	02	T+10	172	03

TABLE 3 LC-33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER)

LEVEL #1, 12 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #2, 62 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	223	02	T-30	245	02
T-20	223	02	T-20	243	02
T-10	223	02	T-10	245	03
T0.0	222	02	T0.0	201	02
T+10	203	02	T+10	166	01

LEVEL #3, 102 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #4, 202 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	219	02	T-30	192	02
T-20	231	02	T-20	209	02
T-10	231	02	T-10	212	03
T0.0	180	01	T0.0	233	07
T+10	226	01	T+10	255	03

TABLE 4 LC-33 FIXED POLE ANEMOMETER MEASURED WINDS

POLE #1 X485,874.29 Y185,958.90 H4018.74 38.7 ft. AGL			POLE #2 X485,874.93 Y186,012.00 H4033.57 53.0 ft. AGL			POLE #3 X485,877.29 Y186,116.06 H4063.92 83.6 ft. AGL		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	MISSING	09	T-30	246	09	T-30	275	09
T-20	MISSING	10	T-20	267	08	T-20	264	11
T-10	MISSING	11	T-10	261	09	T-10	270	11
T0.0	MISSING	09	T0.0	262	07	T0.0	280	12
T+10	MISSING	09	T+10	264	09	T+10	270	11

TABLE 5 LC-33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER)

LEVEL #1, 12 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #2, 62 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	260	07	T-30	278	08
T-20	266	09	T-20	280	07
T-10	260	08	T-10	279	08
T0.0	283	07	T0.0	271	08
T+10	279	10	T+10	267	09

LEVEL #3, 102 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #4, 202 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	270	11	T-30	261	10
T-20	268	10	T-20	264	10
T-10	273	09	T-10	267	10
T0.0	260	09	T0.0	259	10
T+10	258	10	T+10	258	10

TABLE 6

T-TIME PILOT-BALLOON MEASURED WIND DATA

DATE 24 April 1982

SITE: LC-33

TIME: 1005 MST

WSTM COORDINATES:

X= 486,872.00

Y= 184,146.75

H= 3,981.15

SITE: Don

TIME 1003 MST

WSTM COORDINATES:

X= 511,988.37

Y= 247,396.36

H= 3,996.83

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	235	02
150	259	08
210	280	06
270	248	08
330	268	15
390	270	16
500	275	11
650	291	17
800	289	17
950	286	17
1150	291	20
1350	294	22
1550	296	25
1750	301	26
2000	310	29

Data obtained form Nike-Herc
Radar tracked pilot-balloon
observation.

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	255	06
150	288	07
210	296	08
270	302	09
330	307	10
390	304	11
500	299	14
650	287	16
800	288	15
950	296	15
1150	299	19
1350	304	19
1550	307	21
1750	311	25
2000	323	29

Data obtained form single
theodolite tracked pilot-balloon
observation.

TABLE 7

T-TIME PILOT-BALLOON MEASURED WIND DATA

DATE 24 April 1982

SITE: LC-33

TIME: 1011 MST

WSTM COORDINATES:

X= 486,872.00

Y= 184,146.75

H= 3,981.15

SITE: Don

TIME 1010 MST

WSTM COORDINATES:

X= 511,988.37

Y= 247,396.36

H= 3,996.83

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	285	08
150	293	07
210	282	11
270	277	09
330	261	09
390	271	12
500	289	10
650	283	11
800	294	15
950	305	14
1150	287	16
1350	297	18
1550	302	20
1750	304	27
2000	312	30

Data obtained form Nike-Herc
Radar Tracked pilot-balloon
observations

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	225	06
150	295	12
210	296	15
270	290	17
330	285	19
390	281	19
500	276	19
650	275	20
800	282	22
950	288	19
1150	282	17
1350	286	21
1550	280	24
1750	289	25
2000	318	29

Data obtained form single
theodolite tracked pilot-balloon
observations

TABLE 8

AIMING AND T-TIME COMPUTER MET MESSAGES
24 April 1982

WSD 0700 MST	LC-37 0800 MST
METCM1324064	METCM1324063
241400122880	241500124879
00000000 27580880	00204002 28280879
01347005 27890869	01346012 28230868
02235002 28250843	02404007 28300842
03517010 28050803	03507016 28160803
04534017 27740755	04559018 27830755
05546023 27370710	05544021 27430710
06518026 27010667	06513025 27100667
07514032 26760626	07522034 26820626
08515036 26470587	08518032 26570587
09517038 26100550	09511034 26180551
10508038 25680515	10509037 25760516
11502036 25260482	11504036 25330482
12506043 24660435	12507042 24700435
 WSD 0900 MST	 LC-37 1045 MST
METCM1324064	METCM1324063
241600122879	241780124878
00267005 28940879	00373010 29360878
01353004 28680869	01480012 28980867
02460007 28530843	02503022 28670842
03546011 28220803	03509013 28330802
04549018 27820756	04548010 27820754
05552026 27490711	05566016 27310709
06542028 27110668	06576023 27650666
07546029 26870627	07537021 26740625
08525033 26560588	08512029 26370586
09506037 26140551	09522031 26060549
10509038 25720516	10509033 25690514
11514042 25370483	11514035 25270481
12515046 24890436	12515062 24830434

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

SIGNIFICANT LEVEL DATA
1140020172
WHITE SANDS
TABLE 9

STATION ALTITUDE 3989.00 FEET MSL
24 APR. 82 0700 HRS MST
ASCENSION NO. 172

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES	DEWPOINT CENTIGRADE	REL. HUM. PERCENT
879.5	3989.0	1.8	1.5	98.0
870.6	4260.5	5.1	4.5	96.0
861.0	4558.9	6.0	5.4	96.0
850.0	4907.0	8.4	5.9	84.0
841.8	5170.9	9.1	2.9	65.0
804.4	6402.6	6.3	.0	64.0
795.2	6712.6	6.4	-5.6	42.0
768.0	7647.8	5.0	-12.0	28.0
700.0	10107.0	-6	-15.6	31.0
652.2	11950.6	-4.4	-29.4	12.0
626.4	12993.0	-5.5	-29.5	13.0
592.2	14433.3	-8.0	-32.3	12.0
551.0	16260.5	-12.1	-35.6	12.0
500.0	18673.8	-18.3	-38.5	15.0
442.0	21655.6	-26.0	-40.5	24.0
400.0	24011.0	-30.7	-49.3	14.0

STATION ALTITUDE 3989.00 FEET MSL
24 APR. 82 0700 HRS MST
ASCENSION NO. 172

UPPER AIR DATA
1140020172
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

TABLE 10

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	PET. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
3989.0	879.5	1.8	1.5	98.0	1111.1	646.9	.0	.0	1.000282
4000.0	879.1	1.9	1.6	97.9	1110.0	647.1	291.7	.0	1.000282
4500.0	862.9	5.8	5.2	96.0	1073.3	652.0	291.7	1.7	1.000282
5000.0	847.1	8.6	4.9	77.3	1043.2	655.2	291.7	3.4	1.000274
5500.0	831.6	8.4	2.1	64.7	1025.8	654.7	291.7	5.1	1.000263
6000.0	816.4	7.2	.9	64.3	1011.4	653.3	291.7	6.8	1.000257
6500.0	801.5	6.3	-1.5	57.1	996.5	652.1	293.2	9.3	1.000249
7000.0	786.7	6.0	-7.3	37.7	980.3	651.4	295.0	12.7	1.000235
7500.0	772.2	5.2	-10.8	30.2	965.1	650.4	296.6	15.7	1.000228
8000.0	757.9	4.2	-12.5	28.4	950.6	649.2	301.3	17.0	1.000223
8500.0	743.7	3.1	-13.2	29.0	937.0	647.8	305.4	18.3	1.000220
9000.0	729.8	1.9	-13.9	29.6	923.3	646.5	304.8	19.7	1.000216
9500.0	716.2	.8	-14.7	30.3	909.9	645.1	304.2	21.2	1.000213
10000.0	702.8	-.4	-15.4	30.9	896.6	643.8	301.4	22.5	1.000209
10500.0	689.5	-1.4	-18.0	26.9	883.2	642.5	297.8	23.9	1.000204
11000.0	676.4	-2.4	-21.3	21.8	869.9	641.2	294.7	25.5	1.000200
11500.0	663.6	-3.5	-25.2	16.6	856.8	639.9	292.3	27.5	1.000195
12000.0	651.0	-4.5	-29.4	12.0	843.7	638.7	290.2	29.5	1.000191
12500.0	638.5	-5.0	-29.5	12.5	829.1	638.1	289.1	31.6	1.000187
13000.0	626.2	-5.5	-29.5	13.0	814.9	637.4	288.2	33.7	1.000184
13500.0	614.1	-6.4	-30.5	12.6	801.8	636.4	288.3	34.4	1.000181
14000.0	602.3	-7.2	-31.5	12.3	788.9	635.4	288.9	34.5	1.000178
14500.0	590.6	-8.1	-32.4	12.0	776.3	634.3	289.7	34.7	1.000175
15000.0	579.1	-9.3	-33.3	12.0	764.3	632.9	290.7	35.1	1.000172
15500.0	567.8	-10.4	-34.2	12.0	752.6	631.6	291.5	35.6	1.000169
16000.0	556.7	-11.5	-35.1	12.0	741.1	630.2	290.9	36.5	1.000167
16500.0	545.7	-12.7	-35.9	12.3	729.8	628.8	290.4	37.3	1.000164
17000.0	534.8	-14.0	-36.4	12.9	718.8	627.2	288.9	37.6	1.000162
17500.0	524.2	-15.3	-37.0	13.5	708.0	625.6	287.2	37.7	1.000159
18000.0	513.7	-16.6	-37.6	14.2	697.4	624.1	285.8	37.7	1.000157
18500.0	503.5	-17.9	-38.2	14.8	687.0	622.5	284.6	37.6	1.000154
19000.0	493.3	-19.1	-38.5	16.0	676.4	620.9	283.4	37.5	1.000152
19500.0	483.2	-20.4	-38.8	17.5	666.0	619.4	283.4	36.8	1.000150
20000.0	473.3	-21.7	-39.0	19.0	655.7	617.8	283.4	36.0	1.000147
20500.0	463.6	-23.0	-39.4	20.5	645.6	616.2	283.6	36.3	1.000145
21000.0	454.1	-24.3	-39.8	22.0	635.7	614.6	283.9	37.5	1.000143
21500.0	444.9	-25.6	-40.3	23.5	625.9	613.0			1.000141
22000.0	435.6	-26.7	-41.7	22.5	615.6	611.6			1.000138
22500.0	426.5	-27.7	-43.4	20.4	605.2	610.4			1.000136
23000.0	417.5	-28.7	-45.3	18.3	594.9	609.2			1.000133

STATION ALTITUDE 3989.00 FEET MSL	UPPER AIR DATA	GEODETIC COORDINATES
24 APR. 82	1140020172	32.40043 LAT DEG
ASCENSION NO. 172	WHITE SANDS	106.37033 LON DEG
	TABLE 10 Cont'd	

GEOMETRIC ALTITUDE	PRESSURE	TEMPERATURE	REL. HUM.	DENSITY	SPEED OF	WIND DATA	INDEX
MSL FEET	MILLIBARS	AIR DEGREES	PERCENT	GM/CUBIC METER	SOUND KNOTS	DIRECTION DEGREES (TN)	OF REFRACTION
23500.0	408.8	-29.7	16.2	584.8	607.9		1.000131
24000.0	400.2	-30.7	14.0	574.9	606.7		1.000128

STATION ALTITUDE 3989.00 FEET MSL
24 APR. 82 0700 HRS MST
ASCENSION NO. 172

MANDATORY LEVELS
1140020172
WHITE SANDS
TABLE 11

GEODEIC COORDINATES
32.40043 LAT DEG
106.37033 LONG DEG

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
MILLIBARS	FEET	AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE		DIRECTION DEGREES (TN)	SPEED KNOTS
850.0	4903.	8.4	5.9	84.	291.7	3.1
800.0	6545.	6.3	-2.4	54.	293.4	9.6
750.0	8274.	3.6	-12.9	29.	303.6	17.7
700.0	10097.	-6	-15.6	31.	300.6	22.8
650.0	12025.	-4.5	-29.4	12.	290.1	29.6
600.0	14082.	-7.4	-31.7	12.	289.0	34.5
550.0	16285.	-12.2	-35.6	12.	290.6	37.0
500.0	18648.	-18.3	-38.5	15.	284.2	37.5
450.0	21195.	-24.9	-40.0	23.	284.0	38.1
400.0	23971.	-30.7	-49.3	14.		

STATION ALTITUDE 4051.37 FEET MSL
24 APR. 82 0800 HRS MST
ASCENSION NO. 35

SIGNIFICANT LEVEL DATA
1140160035
LC-37

GEODETIC COORDINATES
32.40175 LAT DEG
106.31232 LON DEG

TABLE 12

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE		REL. HUM. PERCENT
		AIR DEGREES	DEWPOINT CENTIGRADE	
878.7	4051.4	8.5	5.3	80.0
854.8	4799.9	7.4	5.7	89.0
850.0	4952.9	8.8	5.9	82.0
835.8	5412.0	9.3	4.5	72.0
816.8	6037.9	8.2	2.7	68.0
800.8	6574.6	7.8	-2.2	49.0
788.6	6990.0	7.1	-3.7	46.0
769.8	7640.7	6.0	-5.9	42.0
714.8	9616.8	.8	-9.2	47.0
700.0	10168.6	.2	-10.9	43.0
652.0	12026.5	-3.6	-20.7	25.0
625.8	13088.3	-5.2	-22.6	24.0
600.2	14164.1	-6.3	-25.5	20.0
549.8	16396.7	-11.5	-28.4	23.0
500.0	18762.2	-17.6	-31.6	28.0
440.2	21847.3	-26.0	-37.4	33.0
418.0	23073.9	-28.4	-40.8	29.0
400.0	24108.8	-30.0	-44.3	23.0

STATION ALTITUDE 4051.37 FEET MSL
24 APR. 82
ASCENSION NO. 35

UPPER AIR DATA
1140100035
LC-37
TABLE 13

GEODETIC COORDINATES
32.40175 LAT DEG
106.31232 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
4051.4	878.7	8.5	5.3	80.0	1082.7	655.1	110.0	1.9	1.000284
4500.0	864.3	7.8	5.5	85.4	1067.3	654.3	208.0	1.4	1.000281
5000.0	848.5	8.9	5.8	81.0	1043.9	655.6	277.8	5.0	1.000277
5500.0	833.1	9.1	4.3	71.4	1024.2	655.8	279.2	8.6	1.000268
6000.0	817.9	8.3	2.8	68.2	1009.0	654.7	279.8	12.3	1.000261
6500.0	803.0	7.9	-1.5	51.6	992.9	653.9	280.9	15.5	1.000248
7000.0	788.3	7.1	-3.8	45.9	977.8	652.9	292.2	18.4	1.000240
7500.0	773.8	6.2	-5.4	42.9	963.0	651.8	301.5	18.6	1.000234
8000.0	759.5	5.1	-6.5	42.9	949.3	650.4	309.5	19.0	1.000230
8500.0	745.4	3.7	-7.3	44.2	936.1	648.8	315.2	18.6	1.000226
9000.0	731.5	2.4	-8.2	45.4	923.2	647.3	315.7	18.6	1.000222
9500.0	717.9	1.1	-9.0	46.7	910.5	645.7	310.4	18.7	1.000218
10000.0	704.5	.4	-10.4	44.2	895.9	644.8	303.7	19.6	1.000214
10500.0	691.2	-5	-12.5	39.8	881.9	643.7	297.2	21.1	1.000208
11000.0	678.1	-1.5	-15.0	34.9	868.7	642.4	292.2	23.7	1.000203
11500.0	665.3	-2.5	-17.6	30.1	855.6	641.2	288.0	26.6	1.000198
12000.0	652.7	-3.5	-20.6	25.3	842.8	639.9	288.6	30.2	1.000194
12500.0	640.2	-4.3	-21.5	24.6	829.0	639.0	289.6	32.9	1.000190
13000.0	627.9	-5.1	-22.4	24.1	815.5	638.1	292.9	33.1	1.000187
13500.0	615.9	-5.6	-23.7	22.5	801.5	637.4	294.4	32.5	1.000183
14000.0	604.0	-6.1	-25.0	20.6	787.7	636.8	294.3	31.0	1.000180
14500.0	592.3	-7.1	-25.9	20.5	775.2	635.6	294.2	31.2	1.000177
15000.0	580.8	-8.2	-26.6	21.1	763.5	634.2	293.9	31.6	1.000174
15500.0	569.5	-9.4	-27.2	21.8	751.9	632.8	290.9	31.7	1.000171
16000.0	558.4	-10.6	-27.9	22.5	740.6	631.4	288.0	32.1	1.000168
16500.0	547.5	-11.8	-28.5	23.2	729.4	630.0	285.6	33.2	1.000166
17000.0	536.6	-13.1	-29.2	24.3	718.5	628.4	284.4	34.4	1.000163
17500.0	526.0	-14.3	-29.8	25.3	707.7	626.8	284.1	35.7	1.000161
18000.0	515.5	-15.6	-30.5	26.4	697.2	625.3	283.8	37.1	1.000158
18500.0	505.3	-16.9	-31.3	27.4	686.8	623.7	283.6	38.4	1.000156
19000.0	495.1	-18.2	-32.1	28.4	676.4	622.1	284.9	37.9	1.000153
19500.0	485.0	-19.6	-33.0	29.2	666.2	620.4	286.0	38.3	1.000151
20000.0	475.1	-21.0	-33.9	30.0	656.1	618.7	286.6	42.0	1.000148
20500.0	465.4	-22.3	-34.8	30.8	646.2	617.1	286.7	43.3	1.000146
21000.0	455.9	-23.7	-35.8	31.6	636.5	615.4	286.3	41.6	1.000143
21500.0	446.6	-25.1	-36.7	32.4	626.9	613.7	285.7	38.0	1.000141
22000.0	437.4	-26.3	-37.8	32.5	617.1	612.1	285.0	33.5	1.000139
22500.0	428.2	-27.3	-39.2	30.9	606.7	610.9	284.7	40.5	1.000136
23000.0	419.3	-28.3	-40.6	29.2	596.4	609.7			1.000134
23500.0	410.5	-29.1	-42.2	26.5	585.8	608.7			1.000131

STATION ALTITUDE 4051.37 FEET MSL	UPPER AIR DATA	GEODETIC COORDINATES
24 APR. 82	1140180035	32.40175 LAT UEG
ASCENSION NO. 35	LC-37	106.31232 LON DEG
	TABLE 13 Cont'd	

GEOMETRIC ALTITUDE	PRESSURE	TEMPERATURE	REL. HUM.	DENSITY	SPEED OF	WIND DATA	INDEX
MSL FEET	MILLIBARS	AIR DEGREE	PERCENT	GM/CUBIC	SOUND	DIRECTION	OF
		DEGREES		METER	KNOTS	DEGREES(TN)	REFRACTION
24000.0	401.9	-29.8	23.6	575.3	607.7		1.000129

STATION ALTITUDE 4051.37 FEET MSL
24 APR. 82 0800 HRS MST
ASCENSION NO. 35

MANDATORY LEVELS
1140180035
LC-37
TABLE 14

GEODETIC COORDINATES
32.40175 LAT DEG
106.31232 LON DEG

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
MILLIBARS	FEET	AIR DEGREES	DEWPOINT CENTIGRADE		DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	4949.	8.8	5.9	82.	277.5	4.6
800.0	6596.	7.8	-2.3	49.	288.0	16.1
750.0	8332.	4.2	-7.0	44.	313.3	18.7
700.0	10159.	.2	-10.9	43.	301.5	20.1
650.0	12093.	-3.7	-20.9	25.	288.8	30.9
600.0	14156.	-6.3	-25.5	20.	294.3	30.9
550.0	16367.	-11.5	-28.4	23.	286.2	32.9
500.0	18736.	-17.6	-31.6	28.	284.2	38.1
450.0	21289.	-24.5	-36.4	32.	286.0	39.7
400.0	24069.	-30.0	-44.3	23.		

STATION ALTITUDE 3989.00 FEET MSL
24 APR. 62 0900 HRS MST
ASCENSION NO. 173

SIGNIFICANT LEVEL DATA
1140020173
WHITE SANDS
TABLE 15

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

PRESSURE	GEOMETRIC ALTITUDE	TEMPERATURE AIR	DEWPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT
MILLIBARS	MSL FEET			
879.0	3989.0	14.6	6.9	59.0
877.8	4026.9	13.0	3.9	54.0
850.0	4913.8	11.9	1.3	48.0
774.4	7448.9	6.1	-3.5	50.0
737.6	8752.3	2.8	-5.1	56.0
710.4	9749.8	1.7	-11.4	37.0
700.0	10139.5	.4	-11.6	40.0
657.6	11775.3	-3.4	-13.3	46.0
640.2	12472.0	-3.7	-17.2	34.0
597.6	14241.0	-6.7	-22.1	28.0
500.0	18729.7	-18.0	-34.4	22.0
400.0	24106.4	-28.2	-43.6	21.0
340.4	27853.0	-36.3	-50.2	22.0
300.0	30701.7	-42.3		
278.4	32351.2	-46.2		
266.8	33281.8	-46.7		
250.0	34695.5	-48.9		
238.8	35684.2	-50.2		
210.1	38427.0	-52.1		

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

UPPER AIR DATA
1140020173
WHITE SANDS
TABLE 16

STATION ALTITUDE 3989.00 FEET MSL
24 APR. 82 0900 HRS MST
ASCENSION NO. 173

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
3989.0	879.0	14.8	59.0	1058.9	662.5	150.0	4.9	1.000281
4000.0	878.7	14.3	57.5	1060.6	661.8	150.4	4.8	1.000279
4500.0	862.9	12.4	50.8	1049.2	659.4	186.4	2.3	1.000268
5000.0	847.3	11.7	48.1	1033.2	658.5	260.8	2.9	1.000261
5500.0	831.9	10.6	48.5	1018.6	657.1	284.0	5.7	1.000256
6000.0	816.7	9.4	48.9	1004.2	655.7	291.6	8.8	1.000251
6500.0	801.9	8.3	49.3	990.1	654.4	301.8	10.4	1.000246
7000.0	787.3	7.1	49.6	976.2	653.0	312.0	11.7	1.000242
7500.0	772.9	6.0	50.2	962.5	651.6	312.1	14.5	1.000237
8000.0	758.6	4.7	52.5	949.0	650.1	311.0	17.5	1.000233
8500.0	744.6	3.4	54.8	935.8	648.6	310.4	20.3	1.000230
9000.0	730.7	2.5	51.3	921.6	647.5	310.0	23.1	1.000224
9500.0	717.1	2.0	41.8	906.6	646.7	309.8	25.3	1.000217
10000.0	703.7	.9	38.9	893.4	645.3	309.6	26.7	1.000212
10500.0	690.4	-.4	41.3	880.8	643.8	308.8	26.9	1.000209
11000.0	677.4	-1.6	43.2	867.8	642.4	307.8	26.6	1.000205
11500.0	664.6	-2.8	45.0	855.1	641.0	307.0	27.1	1.000202
12000.0	651.9	-3.5	42.1	841.3	640.1	306.6	27.7	1.000198
12500.0	639.5	-3.7	33.9	826.2	639.7	306.6	28.8	1.000192
13000.0	627.2	-4.6	32.2	813.0	638.7	305.2	29.8	1.000188
13500.0	615.2	-5.4	30.5	800.0	637.7	302.0	30.5	1.000185
14000.0	603.4	-6.3	28.8	787.2	636.6	298.9	31.4	1.000181
14500.0	591.7	-7.4	27.7	775.0	635.3	295.9	32.4	1.000178
15000.0	580.0	-8.6	27.0	763.4	633.8	293.0	33.6	1.000175
15500.0	568.6	-9.9	26.3	752.0	632.3	290.3	35.2	1.000172
16000.0	557.4	-11.1	25.6	740.7	630.8	287.6	36.8	1.000169
16500.0	546.4	-12.4	25.0	729.7	629.2	286.1	37.6	1.000166
17000.0	535.6	-13.6	24.3	718.8	627.7	284.8	37.8	1.000163
17500.0	525.1	-14.9	23.6	708.1	626.2	284.2	37.8	1.000160
18000.0	514.7	-16.2	23.0	697.6	624.6	285.7	37.1	1.000158
18500.0	504.6	-17.4	22.3	687.2	623.1	287.3	36.4	1.000155
19000.0	494.4	-18.5	21.9	676.3	621.7	288.3	37.7	1.000152
19500.0	484.3	-19.5	21.9	664.9	620.6	289.1	39.2	1.000150
20000.0	474.3	-20.4	21.8	653.6	619.4	289.4	40.9	1.000147
20500.0	464.6	-21.4	21.7	642.6	618.2	289.3	42.7	1.000145
21000.0	455.0	-22.3	21.6	631.8	617.1	289.0	44.5	1.000142
21500.0	445.7	-23.3	21.5	621.2	615.9	289.7	46.1	1.000140
22000.0	436.5	-24.2	21.4	610.9	614.7	289.7	47.7	1.000137
22500.0	427.6	-25.2	21.3	600.5	613.6	288.7	49.3	1.000135
23000.0	418.8	-26.1	21.2	590.5	612.4	287.3	51.1	1.000132

STATION ALTITUDE 3989.00 FEET MSL
24 APR. 82
ASCENSION NO. 173

UPPER AIR DATA
1140020173
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

TABLE 16 Cont'd

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
23500.0	410.2	-27.0	-42.6	21.1	580.6	611.2	286.0	52.8	1.000130
24000.0	401.8	-28.0	-43.4	21.0	570.9	610.0	284.0	54.1	1.000128
24500.0	393.3	-29.1	-44.3	21.1	561.2	608.7	282.2	55.4	1.000126
25000.0	384.9	-30.1	-45.2	21.2	551.7	607.3	280.5	56.7	1.000124
25500.0	376.7	-31.2	-46.1	21.4	542.4	606.0	280.1	57.8	1.000121
26000.0	368.7	-32.3	-46.9	21.5	533.2	604.6	279.6	59.0	1.000119
26500.0	360.8	-33.4	-47.8	21.6	524.2	603.3	279.4	59.9	1.000117
27000.0	353.1	-34.5	-48.7	21.8	515.4	601.9	279.4	60.2	1.000115
27500.0	345.6	-35.5	-49.6	21.9	506.7	600.5	279.4	60.5	1.000113
28000.0	338.2	-36.6	-50.9	20.9**	498.0	599.2	279.1	61.0	1.000111
28500.0	330.8	-37.7	-53.5	17.0**	489.3	597.8	278.5	61.6	1.000109
29000.0	323.5	-38.7	-56.5	13.1**	480.7	596.5	277.9	62.3	1.000107
29500.0	316.4	-39.8	-60.1	9.3**	472.3	595.2	277.6	62.7	1.000105
30000.0	309.5	-40.8	-64.9	5.4**	464.1	593.8	277.4	62.8	1.000103
30500.0	302.7	-41.9	-74.2	1.6**	455.9	592.5	277.2	62.9	1.000102
31000.0	296.0	-43.0			448.0	591.0	277.0	63.1	1.000100
31500.0	289.3	-44.2			440.2	589.5	276.8	63.6	1.000098
32000.0	282.9	-45.4			432.6	588.0	276.2	64.0	1.000096
32500.0	276.5	-46.3			424.6	586.8	275.7	65.6	1.000095
33000.0	270.3	-46.5			415.5	586.4	275.0	68.5	1.000093
33500.0	264.1	-47.0			406.9	585.8	274.4	71.3	1.000091
34000.0	258.1	-47.8			399.1	584.8	274.3	71.5	1.000089
34500.0	252.3	-48.6			391.3	583.8	274.3	70.9	1.000087
35000.0	246.5	-49.3			383.6	582.9	274.3	69.9	1.000085
35500.0	240.8	-50.0			375.9	582.0	274.4	66.4	1.000084
36000.0	235.3	-50.4			368.0	581.4	274.4	62.8	1.000082
36500.0	229.9	-50.8			360.1	581.0			1.000080
37000.0	224.6	-51.1			352.3	580.5			1.000078
37500.0	219.4	-51.5			344.7	580.1			1.000077
38000.0	214.3	-51.8			337.3	579.6			1.000075

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.00 FEET MSL
 24 APR. 82
 ASCENSION NO. 173
 0900 HRS MST

MANDATORY LEVELS
 1140020173
 WHITE SANDS
 TABLE 17

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
MILLIBARS	FEET	AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE		DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	4910.	11.9	1.3	48.	251.8	2.6
800.0	6564.	8.1	-1.8	49.	303.3	10.5
750.0	8300.	3.9	-4.5	54.	310.6	19.2
700.0	10130.	.4	-11.6	40.	309.6	27.1
650.0	12064.	-3.5	-14.9	41.	306.5	27.9
600.0	14130.	-6.5	-21.8	28.	298.0	31.6
550.0	16338.	-12.0	-27.8	25.	286.5	37.5
500.0	18704.	-18.0	-34.4	22.	287.8	36.9
450.0	21263.	-22.8	-38.8	22.	289.7	45.4
400.0	24067.	-28.2	-43.6	21.	283.7	54.3
350.0	27167.	-34.9	-49.1	22.	279.4	60.3
300.0	30641.	-42.3			277.1	62.9
250.0	34621.	-48.9			274.3	70.7

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

GEODETIC COORDINATES
32.40175 LAT DEG
106.31232 LON DEG

SIGNIFICANT LEVEL DATA
1140180037
LC-37

TABLE 18

STATION ALTITUDE 4051.37 FEET MSL
24 APR. 82 1045 HRS MST
ASCENSION NO. 37

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT
877.6	4051.4	19.0	31.0
871.8	4237.4	16.4	28.0
850.0	4940.8	13.6	30.0
785.8	7091.0	8.1	42.0
739.6	8719.0	2.9	54.0
700.0	10171.7	-1.7	68.0
693.6	10411.6	-2.8	73.0
685.0	10736.9	-2.7	68.0
667.2	11423.6	-2.5	43.0
614.6	13548.0	-6.8	27.0
597.4	14274.0	-8.5	30.0
555.2	16127.4	-12.6	36.0
546.4	16528.7	-12.4	30.0
500.0	18733.7	-18.1	22.0
474.6	20006.5	-21.4	18.0
428.4	22472.6	-25.1	16.0
400.0	24099.7	-28.9	16.0

STATION ALTITUDE 4051.37 FEET MSL
24 APR. 82 1045 HRS MST
ASCENSION NO. 37

UPPER AIR DATA
1140180037
LC-37

GEODETIC COORDINATES
32.40175 LAT DEG
106.31232 LON DEG

TABLE 19

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CM ³	SPEED OF SOUND KNOTS	WIND DIRECTION DEGREES (TN)	WIND SPEED KNOTS	INDEX OF REFRACTION
4051.4	877.6	19.0	1.5	31.0	1043.4	666.9	210.0	9.9	1.000263
4500.0	863.6	15.4	-2.7	28.7	1040.5	662.4	235.7	9.4	1.000255
5000.0	848.2	13.4	-3.6	30.3	1028.8	660.2	261.4	11.0	1.000251
5500.0	832.8	12.2	-3.6	33.1	1014.7	658.8	278.2	14.1	1.000248
6000.0	817.7	10.9	-3.6	35.9	1000.8	657.3	285.9	15.6	1.000245
6500.0	802.9	9.6	-3.7	38.7	987.1	655.8	289.1	13.4	1.000242
7000.0	788.4	8.3	-4.0	41.5	973.6	654.3	293.4	11.3	1.000239
7500.0	773.9	6.8	-4.3	45.0	961.0	652.5	299.0	10.7	1.000236
8000.0	759.7	5.2	-4.7	48.7	948.7	650.7	304.6	10.7	1.000232
8500.0	745.7	3.6	-5.2	52.4	936.6	648.8	309.3	11.3	1.000229
9000.0	731.8	2.0	-5.7	56.7	924.5	646.9	311.6	13.2	1.000226
9500.0	718.0	.4	-6.1	61.5	912.5	645.0	313.6	15.1	1.000223
10000.0	704.6	-1.2	-6.6	66.3	900.6	643.1	319.3	17.1	1.000220
10500.0	691.3	-2.8	-7.2	71.6	888.9	641.2	324.0	19.2	1.000217
11000.0	678.1	-2.6	-9.6	58.4	871.8	641.3	325.0	21.2	1.000209
11500.0	665.2	-2.7	-13.6	42.4	855.7	641.1	323.6	23.2	1.000202
12000.0	652.5	-3.7	-15.7	38.7	842.6	639.9	316.9	23.4	1.000197
12500.0	640.0	-4.7	-17.8	34.9	829.7	638.6	309.0	23.4	1.000193
13000.0	627.8	-5.7	-20.0	31.1	817.0	637.4	302.9	22.7	1.000189
13500.0	615.7	-6.7	-22.4	27.4	804.6	636.1	296.3	22.8	1.000185
14000.0	603.8	-7.9	-22.8	28.9	792.4	634.7	291.5	24.5	1.000182
14500.0	592.1	-9.0	-23.1	30.7	780.4	633.4	288.5	26.3	1.000179
15000.0	580.5	-10.1	-23.5	32.4	768.3	632.0	289.0	28.4	1.000176
15500.0	569.1	-11.2	-23.9	34.0	756.5	630.7	289.2	29.9	1.000173
16000.0	558.0	-12.3	-24.4	35.6	744.8	629.4	288.7	30.2	1.000171
16500.0	547.0	-12.4	-26.2	30.4	730.5	629.2	288.4	30.6	1.000167
17000.0	536.1	-13.6	-28.0	28.3	719.3	627.7	288.1	31.1	1.000164
17500.0	525.5	-14.9	-29.9	26.5	708.6	626.2	288.5	32.3	1.000161
18000.0	515.0	-16.2	-31.7	24.7	698.0	624.6	289.4	34.3	1.000158
18500.0	504.7	-17.5	-33.6	22.8	687.6	623.0	289.7	36.0	1.000155
19000.0	494.6	-18.8	-35.5	21.2	677.2	621.4	289.6	37.5	1.000153
19500.0	484.5	-20.1	-37.4	19.6	666.9	619.8	289.7	38.3	1.000150
20000.0	474.7	-21.4	-39.3	18.0	656.8	618.2	289.7	38.6	1.000147
20500.0	465.0	-22.1	-40.1	17.6	645.2	617.3	290.4	37.7	1.000145
21000.0	455.4	-22.9	-41.0	17.2	633.9	616.3	291.5	36.2	1.000142
21500.0	446.1	-23.6	-41.8	16.8	622.7	615.4	290.6	45.4	1.000140
22000.0	436.9	-24.4	-42.7	16.4	611.8	614.5	289.7	56.7	1.000137
22500.0	427.9	-25.2	-43.5	16.0	601.0	613.5	289.1	68.7	1.000135
23000.0	419.0	-26.3	-44.5	16.0	591.3	612.1			1.000132
23500.0	410.2	-27.5	-45.5	16.0	581.7	610.6			1.000130

STATION ALTITUDE 4051.37 FEET MSL	UPPER AIR DATA	GEODETIC COORDINATES
24 APR. 82	1140180037	32.40175 LAT DEG
ASCENSION NO. 37	LC-37	106.31232 LON DEG

TABLE 19 Cont'd

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE				DIRECTION DEGREES(TN)	SPEED KNOTS	
24000.0	401.7	-28.7	-46.5	16.0	572.3	609.2			1.000128

STATION ALTITUDE 4051.37 FEET MSL
24 APR. 82 1045 HRS MST
ASCENSION NO. 37

MANDATORY LEVELS
1140180037
LC-37

TABLE 20

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM.		WIND DATA	
MILLIBARS	FEET	AIR DEGREES	DEWPOINT CENTIGRADE	PERCENT		DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	4937.	13.6	-3.6	30.		258.7	10.7
800.0	6599.	9.4	-3.8	39.		289.8	13.0
750.0	8339.	4.1	-5.1	51.		308.3	10.7
700.0	10162.	-1.7	-6.8	68.		321.0	17.7
650.0	12090.	-3.9	-16.1	38.		315.4	23.4
600.0	14147.	-8.2	-22.9	30.		290.2	25.0
550.0	16343.	-12.5	-25.6	32.		288.4	30.5
500.0	18708.	-18.1	-34.5	22.		289.7	36.7
450.0	21260.	-23.3	-41.5	17.		291.1	40.5
400.0	24060.	-28.9	-46.7	16.			

DATE
FILMED

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